GDT 134

A. Scope

For a complete list of GDTs, see the Table of Contents.

Use this test method to determine the ride quality (smoothness) of bridge decks and approach slabs using the International Cybernetics Corporation Lightweight Profiler System herein referenced as the Lightweight Profiler.

B. Apparatus

1. Use the Lightweight Profiler to collect bridge and roadway surface data for determining ride quality. The system performs independently of the vehicle characteristics and travel speed. The Lightweight Profiler system includes an on-board computer interfaced to two Selcom 200 laser height sensors, two accelerometers and one distance measuring transducer. Ensure that these components function together to allow profile data to be collected in either or both wheel paths.
2. Ensure the computer based Lightweight Profiler is capable of:
    a. Interfacing with the operator,
    b. Controlling all tests,
    c. Measuring the resultant test data,
    d. Recording the data on an IBM-PC compatible storage system (i.e., hard drive, floppy disk drive, and remote data storage system,
    e. Calculating and storing profile and distance values,
    f. Displaying the stored data and,
    g. Printing the data upon request and calculating the ride characteristics of the bridge or roadway surface.
3. Ensure that the Lightweight Profiler is equipped with various hardware and software subsystems that together will allow the measurement and recording of the longitudinal profile of both wheel tracks and the reference distance traveled.

C. Sample Size and Preparation

Sections to be tested shall be the entire length of the bridge including approach slabs. Asphalt pavement approaches shall be tested for 100 ft (30 m) at both bridge ends.

D. Procedure

1. Prior to testing, calibrate the Lightweight Profiler as outlined in the operations manual.
2. Check all tire pressures for proper inflation, 50 psi (345 kPa). If the inflation is below or above the recommended pressure, make the proper adjustments to insure ride balance.
3. Sensors to be used need to be uncapped and the face of the sensors cleaned with a soft rag or towel. Do not use liquids to clean sensors lens.
4. Perform accelerometer calibrations each day prior to testing.
5. Perform other calibrations and operational procedures in accordance with the procedures set forth in the operations manual.
6. Tests can be made at speeds up to 25 mph.
7. Perform acceptance testing only on bridges where concrete approach slabs are in place. Acceptance testing will be performed only when the pavement is cleared of any debris or obstructions that may affect test results or be deemed hazardous by the operator. Where the traffic or roadway alignment may be hazardous, the contractor shall provide traffic control to insure the safety of the motoring public and Profiler operator.
8. The profile of the surface will be tested in each lane.

E. Calculations

No calculations are necessary:

F. Report

Computer generated profiles will be furnished to the Engineer and Contractor at the time of testing if corrective work is required. Paper reports will follow after all corrective work is performed. It is essential that project personnel be informed of test results upon completion of tests performed. .